DOCUMENT RESUME

ED 288 520 IR 012 923

AUTHOR Keller, John M.
TITLE Use of the ARCS Model of Motivation in Teacher Training. IDD&E Working Paper No. 10.
INSTITUTION Syracuse Univ., N.Y. School of Education.
PUB DATE Mar 83
NOTE 11p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Inservice Teacher Education; Instructional Design; *Instructional Development; *Learning Strategies; *Models; *Motivation; Program Evaluation; Teacher Behavior; *Teaching Methods; Workshops
IDENTIFIERS *ARCS Model

ABSTRACT

This paper presents the ARCS model, which is a research-based systematic design model that interfaces with typical instructional design and development models to improve the motivational appeal of instructional materials, of instructor behavior, and of the way in which lessons (or modules) and courses are designed. The description of the model, which provides strategies that a course designer or teacher can use to make instruction responsive to the interests and needs of learners, includes: (1) four major conditions defined by the model that have to be met for people to become and remain motivated, i.e., Attention, Relevance, Confidence, and Satisfaction (ARCS); and (2) the three phases of using the model in an instructional development sequence, i.e., define, develop, and evaluate. The paper concludes with a discussion of two developmental tests of the ARCS model, which involved its presentation at teacher training workshops and evaluation of the results of the participants' subsequent applications of the model in their classrooms. Lists of 9 references and 13 additional IDD&E working papers are provided. (RP)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ED288520

INSTRUCTIONAL DESIGN, DEVELOPMENT, AND EVALUATION

WORKING PAPERS

USE OF THE ARCS MODEL OF MOTIVATION
IN TEACHER TRAINING

by

John M. Keller

IDD&E Working Paper No. 10
March, 1983

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Charles Reigeluth

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

SCHOOL OF EDUCATION, SYRACUSE UNIVERSITY

IR012923

BEST COPY AVAILABLE

This report is a working paper intended for prepublication distribution. The reader's comments are solicited and should be conveyed directly to the author(s).

IDD&E Working Papers are available at cost from the Instructional Design, Development and Evaluation Program at Syracuse University.

If you would like to subscribe regularly to the IDD&E Working Papers at cost, please notify the editor.

IDD&E Working Papers
Instructional Design, Development & Evaluation Program
Division of Educational Development, Counseling and Administrative Studies
School of Education
Syracuse University

Charles M. Reigeluth, Editor
Sheila Thompson, Production Editor
330 Huntington Hall
Syracuse University
Syracuse, NY 13210

WHAT IS THE ARCS MODEL?

The ARCS model is a system for improving the motivational appeal of instructional materials, of instructor behavior, and of the way in which lessons (or modules) and courses are designed. It provides strategies which a course designer or teacher can use to make instruction responsive to the interests and needs of learners.

WHY THE ARCS MODEL?

This model was created because of the lack of guidance that presently exists for improving the motivational quality of instruction. Much has been written about how to design instruction that will be effective if students want to learn, but there is relatively little that tells how to make the instruction more appealing.

WHERE DID THE ARCS MODEL COME FROM?

The ARCS Model is the result of several years of research and application. A synthesis of the various approaches to studying human motivation (Keller, 1983) provided a basis for developing a useful set of categories and prescriptive strategies. All of the strategies in the model are derived from research findings and from practices that have resulted in motivated learners. The remainder of this paper is an overview of the characteristics of the model, how it is used, and the results of two developmental tests.

CHARACTERISTICS OF THE ARCS MODEL

The ARCS Model defines four major conditions (attention, relevance, confidence, and satisfaction) that have to be met for people to become and remain motivated. Each of these subsumes several areas of psychological research (Keller, 1979), and several categories of motivational prescriptions (Keller, 1983).

Attention. The first condition, attention, is also a prerequisite for learning. At one level, it is fairly easy to accomplish. A dramatic statement, a sharp noise, a 'pregnant' pause, all of these and many other devices are used to get attention. However, getting attention is not enough.

The real challenge is to sustain it, to produce a satisfactory level of attention throughout the course. To do this, we have to respond to

the sensation seeking needs of students (Zuckerman, 1971), and arouse their basic curiosity (Berlyne, 1965). Ultimately, the best way to fight boredom and indifference is to stimulate their curiosities so the instructor can spend more time directing attention than in getting it.

Relevance. How many times have we heard students ask, 'Why do I have to study this?' When a convincing answer is not forthcoming, there is a relevance problem. To answer this question, many course designers and instructors try to make the instruction seem relevant to present and future career opportunities for the students. Others, in a more classical tradition, believe that learning should be an end in itself, something that students come to enjoy and treasure. However, there is a third way. It focuses on process rather than ends.

Relevance can come from the way something is taught; it does not have to come from the content itself. For example, people high in need for affiliation will tend to enjoy classes in which they can work cooperatively in groups. Similarly, people high in need for achievement enjoy the opportunity to set moderately challenging goals, and to take personal responsibility for achieving them. To the extent that a course of instruction offers opportunities for individuals to satisfy these and other needs, the person will have a feeling of perceived relevance, that this course is 'for me.'

Confidence. Losers and winners. We've all seen them both. However, we are not talking about the people who come in first or last in a competitive sport. We are talking about people who never quite make it even when the odds are in their favor, versus the ones who always pull through no matter what the odds.

This characteristic is part of our third rquirement for motivation. It has several popular names including 'will-power,' 'guts,' and 'the power of positive thinking.' More formally, it is called such things as expectancy for success (Fibel & Hale, 1978), self-fulfilling prophecy (Jones, 1977), and personal causation (Bandura, 1977) to mention only a few. Essentially, it refers to a person's belief that if he tries to do something he will succeed, and its effects on performance can be dramatic.

Satisfaction. This category incorporates the things we know about ways to make people feel good about their accomplishments. According to reinforcement theory, people should be more motivated if we define the task and the reward, and we use an appropriate reinforcement schedule. Why, then, do people sometimes get resentful and even angry when we tell them what they have to do, and what we will give them as a reward? An important part of the answer seems to be 'control.'

When we require someone to do something to get a reward that we control, we may create resentment because we have taken over part of that person's ability to control his own life. This is especially likely to happen when the behavior we control is one which the other person enjoys for intrinsically satisfying reasons. The establishment of external

control over an intrinsically satisfying behavior can decrease the person's enjoyment of the activity (Lepper & Greene, 1978). But, there are appropriate ways to use extrinsic rewards in learning situations. The challenge is to provide appropriate contingencies without overcontrolling.

These four categories form the basis of the ARCS Model. Within each are subcategories that include prescriptive motivational strategies (see Keller & Dodge, 1982). However, given the purpose of this model for helping to identify specific ways to make instruction more appealing, there is still the question of procedure; how is the ARCS Model used in an instructional development sequence? The following two sections provide a brief description of this process, and the results of using the model with two groups of teachers.

USING THE ARCS MODEL

The ARCS Model is a systematic design model that interfaces with typical instructional design and development models. It can be conveniently separated into the steps of define, develop, and evaluate.

Define. The define phase has two purposes. The first is to determine the general level of audience motivation. In some situations, a group of students will be highly motivated for a particular class due to their intrinsic interests in the topic, or because of external factors that make the class important to them. In other cases, the students' motivation will have to be stimulated after they arrive at the class. In the first case, the designer or instructor will have to maintain the motivation, but in the second case, strategies to establish motivation will be needed.

An important constraint of the ARCS Model that became more explicit during the developmental testing is that it is designed to help make a course of instruction more motivating for an ordinary class of students. This means a class in which some people will be very cooperative and interested, others will be indifferent and bored, and some may even be slightly antagonistic. However, the group as a whole will be responsive if an effective set of motivational strategies is employed. The ARCS Model is not intended to solve the problems of an individual person or group with severe personality difficulties.

The second purpose of the define phase is to determine the specific motivational problem categories (as defined in the ARCS Model), and prepare motivational objectives. Included in the ARCS Model materials is a checklist that helps identify the specific areas which are most likely to need special attention in the development of motivational strategies. Of course, it is always possible that a balanced focus will be needed in a given context; that is, a designer or teacher may not have an acute problem area, but simply might need to give balanced treatment to all four areas. The resulting motivational objectives will indicate the results of this definitional stage.

Development. The first step in development is to create a list of potential motivational strategies for each of the objectives. This list will almost always be longer than the final one. For any given motivational objective, there can be any number of specific strategies that will help accomplish the objective. Brainstorming is generally used at this phase. The goal is to move away from the analytical thinking that characterizes the define phase, and to begin thinking in an uncritical, more creative mode.

The next step is to produce an effective integration of the motivational strategies into the instruction. They should not take up too much time or detract from the learning objectives, fall within the time and money constraints of the development and implementations aspects of the instruction, be acceptable to the audience, and be compatable with the delivery system including the instructor's style. This involves a cyclical process of putting the motivational strategies into the instructional context, determining the quality of the 'fit,' and then revising.

In this process, it is important to note that 'more is not always better.' For example, if a class comes to you already motivated, you do not want to inject an excessive number of motivational strategies. This would slow the class, and distract from their orientation to the task.

The strategies included in the model are proven, but their effectiveness, and the exact way in which they are implemented depends in part on the personality of the instructor, and the type of atmosphere that he or she wants (e.g. formal versus informal). Consequently, the final selection of strategies for a given instructional event is based, in large part, on the judgments of the designer and teacher rather than on objective criteria. In this sense, even though the ARCS Model is a prescriptive model, it is more heuristic than algorithmic. It helps insure a solution to motivational problems, but it does not guarantee one as does a correctly applied algorithm. It requires experience and judgment, and perhaps even some trial-and-error from the designer.

Evaluation. It is important to base the evaluation of the materials on motivational as well as learning outcomes. Too often, decisions about the effectiveness of motivational strategies are based on gain scores or other achievement measures. This is not a good practice, because these dependent variables are affected by many factors, not just motivational ones (see Keller, 1979, for a more complete discussion of this point). To judge motivational consequences, we need to use direct measures or persistence, intensity of effort, emotion, and attitude.

DEVELOPMENTAL TEST OF THE ARCS MODEL

The ARCS Model has been used in two teacher training workshops. The first was in the spring of 1982 with 18 teachers of children between the ages of 12 and 14. All of the teachers were from the same school district, and most were from the same school. The workshop took place

over a period of four months with afternoon meetings twice a month. It was conducted by a colleague of the author who was familiar with the motivational material surrounding the ARCS Model, and included one session in which the author presented the specific strategies and procedures of the model.

During the four months of the project, the teachers went through the complete process of defining a motivational problem, formulating objectives, selecting strategies, preparing an implementation plan, enacting the plan, conducting evaluation, analyzing results, and describing their conclusions. Most of the teachers worked on developing or revising modules of instruction to make them more interesting, but some worked on the motivational problems of specific students.

In general, the results of this experience were positive. Many teachers achieved the motivational goals that they had set. However, even those who did not tended to feel that they had benefited from the process, and they felt encouraged to try again.

An interesting consequence of using the ARCS Model in this setting occurred. Some of the teachers, in their conclusions, suggested that the key factor in the process was that they had simply paid more attention to the student, or class. At first, this seemed to be a disappointing outcome for the ARCS Model. Why have a reasonably cumbersome, complex, time-consuming model if 'paying more attention' is all that is required?

Upon reflection, it became clear that the teachers were not giving themselves enough credit for what they had actually accomplished. After looking back at their action plans and logbooks, it was obvious that they had used specific strategies to bring about the change. For them, 'attention' was simply a convenient word to summarize a great many specific acts.

In the winter of 1982-83 a second test was conducted with another group consisting of 16 teachers ranging from kindergarten to senior high school within a single school district. This was a six-day workshop conducted by the author and two assistants for two days each in November, December, and January. One day each month was spent in a working session with the teachers, and the other day each month was used for classroom visitations and individual consultation.

At the end of the first session, the teachers had defined their problems. During the next four weeks, they were to work on collecting data to verify the problem, and to develop a preliminary strategy list. They were enthusiastic when we left, but when we returned, several had run into difficulties and beccome depressed.

We had encouraged the teachers to work on instructional improvement problems, rather than behavioral modification ones, but several had chosen the latter. Upon closer inspection of the details of the problems of some of these students, it became clear that it would be a challenge even for a professional psychotherapist to help them. The teachers who

chose instructional improvement projects had, as a group, made better progress and felt more positive. We asked the concerned teachers to redefine their problems into something more manageable, and their progress improved quickly. However, in general there were slightly more difficulties with the second group than the first.

Why, we wondered, did the ARCS Model work better with the first group of teachers, including the ones who chose behavior modification problems? In the first group, the workshop leader had worked with the school district, and with the same group of teachers, on several other projects during the preceding three years. The earlier projects were concerned with helping the teachers learn to use systematic development and research procedures for creating and validating instructional improvement projects in the areas of curiosity and cognitive problem-solving skills.

In the second group, most of the teachers had not had an inservice training program in several years, and some had never had one. Consequently, these teachers were starting from 'scratch' in terms of orienting themselves toward a productive experience in the workshop, and toward the specific processes of systematic development. They had to learn the generic design process as represented in the specific context of the ARCS Model, and the content of the model itself. Despite the emphasis in the workshop on problem analysis, this group chose too many problems that were interesting and important to them, but fell outside the scope of the ARCS strategies or the time constraints of the workshop.

STATUS OF THE ARCS MODEL

The two developmental tests tended to confirm the basic assumptions of the ARCS Model. The data collected by the teachers at the end of their projects indicated that many of them accomplished the motivational goal they had set, and they felt that the ARCS Model was helpful to them. This provided support at both the objective and affective levels. Furthermore, the ARCS Model works best with instructional improvement projects as it was intended. It is not designed to help solve motivational problems of individual students, although it can be helpful to a teacher or counsellor who has experience with behavioral change strategies, and the development of individual learning packages. The ARCS Model works best as a tool to assist in improving the appeal of instructional materials and programs.

REFERENCES

Bandura, A. Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 1977, 84, pp 191-215.

Berlyne, D. E. Motivational problems raised by exploratory and epistemic behavior. In S. Koch (ed) Psychology: A Study of a Science, Vol. 5. New York: McGraw-Hill, 1965.

Fibel, B., & Hale, W. D. The generalized expectancy for success scale -- A new measure. Journal of Consulting and Clinical Psychology, 1978, 46, pp 924-931.

Jones, R. A. Self-Fulfilling Prophecies: Social, Psychological, and Physiological Effects of Expectancies. New York: Halsted Press, 1977.

Keller, J. M. Motivation and instructional design: A theoretical perspective. Journal of Instructional Development, 1979, 2 (4), pp 26-34.

Keller, J. M. Motivational design of instruction. In C. M. Reigeluth (ed) Instructional Design Theories and Models: An Overview of Their Current Status. Morristown, N. J.: Lawrence Erlbaum, Publisher, 1983.

Keller, J. M., & Dodge, B. J. The ARCS Model of Motivational Strategies for Instruction. Syracuse, New York: Motech Learning Systems, 1982.

Lepper, M. R., & Greene, D. The Hidden Costs of Reward. Morristown, N. J.: Lawrence Erlbaum Associates, 1979.

Zuckerman, M. Dimensions of sensation seeking. Journal of Consulting and Clinical Psychology, 1971, 36, pp 45-52.

PREVIOUS WORKING PAPERS

The following is a list of IDD&E Working Papers that have been published. With the exception of the * titles, these Working Papers are available at 50¢ each plus postage.

*1. Meaningfulness and Instruction: Relating What is Being Learned to What a Student Knows by Charles M. Reigeluth, March 1980 (34 pp.)

*2. Relating What is to be Learned to What is Known: Subsumptive Sequencing, Coordination, and Cognitive Strategies Activation by Faith S. Stein, Jody K. Witham and Charles M. Reigeluth, April 1980 (44 pp.)

*3. Toward a Common Knowledge Base: The Evolution of Instructional Science by Charles M. Reigeluth, August 1980 (44 pp.)

*4. Using Videodiscs in Instruction: Realizing Their Potential Through Instructional Design by Charles M. Reigeluth and Joanne Garfield, September 1980 (41 pp.)

*5. The Use of Sequence and Synthesis for Teaching Concepts by Linda Frey and Charles M. Reigeluth, December 1981 (16 pp.)

*6. A Comparison of Three Instructional Presentation Formats by Bonnie Keller and Charles M. Reigeluth, January 1982 (30 pp.)

*7. Type and Position of Adjunct Questions: Their Effects on Memory and Application by Afnan N. Darwazeh and Charles M. Reigeluth, February 1982 (18 pp.)

*8. The Effects of Sequence and Synthesis on Concept Learning Using a Parts-Conceptual Structure by C. Herbert Carson and Charles M. Reigeluth, February 1983 (23 pp.)

*9. The Effects of Analogies on Student Motivation and Performance in an Eighth Grade Science Context by Ruth V. Curtis and Charles M. Reigeluth, March 1983 (31 pp.)

*10. Use of the ARCS Model of Motivation in Teacher Training by John M. Keller, March 1983 (9 pp.)

11. The Effect of Three Different Kinds of Feedback: Hint, Correct Answer, and Right/Wrong by Betty Feng and Charles M. Reigeluth, April 1983 (19 pp.)

12. Effects of Four Instructional Sequences on Application and Transfer by Chun-I Chao, Luz Ruiz and Charles M. Reigeluth, May 1983 (23 pp.)

13. The Effects of Format of Synthesizer on Conceptual Learning by Lois McLean, N. Kai Yeh and Charles M. Reigeluth, June 1983 (23 pp.)

14. Current Trends in Task Analysis: The Integration of Task Analysis and Instructional Design by Charles M. Reigeluth, July 1983 (20 pp.)